

AMENDMENTS TO THE CLAIMS

Claim 1 (canceled)

Claim 2 (currently amended): The fluorescence quencher composition compound of claim + 76 wherein the electron-withdrawing groups are selected from NO₂, CN, CF₃, CO₂H, CO₂R, C(O)NH₂, C(O)NHR, C(O)NR₂, CHO, C(O)R, SO₂R, SO₂CF₃, SO₂OR, SO₃H, NO, and C₅-C₁₄ aryl NO₂, CN, CF₃, CO₂H, CO₂R⁶, C(O)NH₂, C(O)NHR⁶, C(O)NR⁶R⁶, CHO, C(O)R⁶, SO₂R⁶, SO₂CF₃, SO₂OR⁶, SO₃H, NO and C₅-C₁₄ aryl, wherein R R⁶ is H, C₁-C₁₂ alkyl or C₅-C₁₄ aryl.

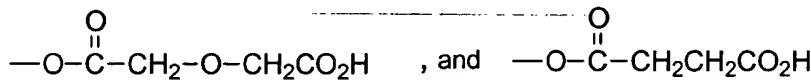
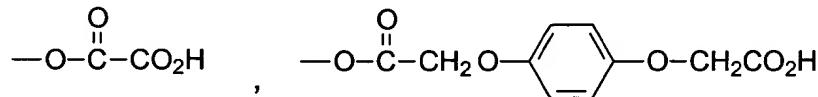
Claim 3 (currently amended): The fluorescence quencher composition compound of claim 2 wherein a NO₂ is *para* to a diazo group.

Claim 4 (currently amended): The fluorescence quencher composition compound of claim + 76 wherein the electron-donating groups are selected from O⁻, S⁻, NR₂, NHR, NH₂, NHC(O)R, OR, OH, OC(O)R, SR, SH, Br, I, Cl, F, R, and C₅-C₁₄ aryl O⁻, S⁻, NR⁷R⁷, NHR⁷, NH₂, NHC(O)R⁷, OR⁷, OH, OC(O)R⁷, SR⁷, SH, Br, I, Cl, F, R⁷ and C₅-C₁₄ aryl, wherein R R⁷ is H, C₁-C₁₂ alkyl or C₅-C₁₄ aryl.

Claim 5 (currently amended): The fluorescence quencher composition compound of claim 4 wherein a OCH₃ is *ortho* or *meta* to a diazo group.

Claim 6 (currently amended): The fluorescence quencher composition compound of claim + 76 wherein Z is OH.

Claim 7 (currently amended): The fluorescence quencher composition compound of claim + 76 wherein Z is an ester selected from the structures:



Claim 8 (canceled)

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Claim 9 (currently amended): The fluorescence quencher composition compound of claim 4 76 wherein X is selected from DMT, MMT, trityl, substituted trityl, pixyl, and trialkylsilyl.

Claims 10 - 18 (canceled)

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Claim 19 (currently amended): The fluorescence quencher composition compound of claim 4 18 78 wherein R₁ and R₂ R¹ and R² are each isopropyl and R₃ R³ is cyanoethyl.

Claim 20 (currently amended): The fluorescence quencher composition compound of claim 4 18 78 wherein X is selected from DMT, MMT, trityl, substituted trityl, pixyl, and trialkylsilyl.

Claims 21-22 (canceled)

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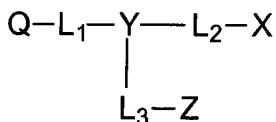
Claim 23 (currently amended): The fluorescence quencher composition compound of claim 4 76 where X is a polynucleotide.

Claim 24 (currently amended): The fluorescence quencher composition compound of claim 23 wherein the polynucleotide comprises one or more N-[2-(aminoethyl)]glycine units having a nucleobase attached to nitrogen through a methylene carbonyl linkage.

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Claim 25 (currently amended): The fluorescence quencher composition compound of claim 23 wherein the polynucleotide comprises one or more 2'-4' or 3'-4' bicyclic sugar modifications.

Claims 26-75 (canceled)

Claim 76 (new): A fluorescence quencher compound having the structure:



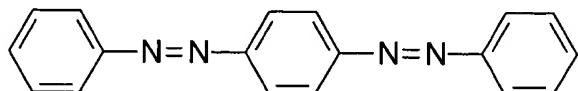
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wherein:

Y is selected from N and CR, wherein R is H, C₁-C₆ alkyl or C₅-C₁₄ aryl;
L₁, L₂, and L₃ are independently selected from a bond, C₁-C₁₂ alkyldiyl, C₁-C₁₂ alkoxyldiyl, C₁-C₁₂ alkylaminodiyl, C₁-C₁₂ alkylamidediyl, C₅-C₁₄ aryldiyl, and 1-20 ethyleneoxy units, or, alternatively, L₁ is -NR⁴C(=O)(CH₂)_n-, -NR⁴C(=O)(CH₂)_nC(=O)NH-, or -NR⁴(CH₂)_nC(=O)NH(CH₂)_n-, L₂ is -(CH₂)_nO-, and L₃ is -(CH₂)_n-, wherein n is an integer from 1 to 12 and R⁴ is H, C₁-C₆ alkyl or C₅-C₁₄ aryl;

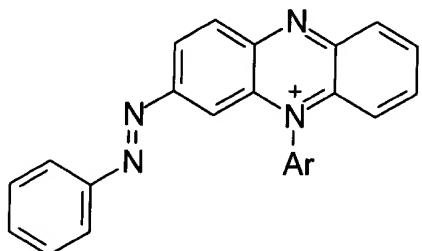
X is an amino acid, a polypeptide, a nucleoside, a nucleotide, a polynucleotide, or a protected form thereof, or X is an acid-labile protecting group;

Z is selected from H, CO₂H, OH, NH₂, NHR⁵, NR⁵R⁵, SH, OP(NR¹R²)(OR³), an ester, a cleavable linker, a reactive linking group, and a label selected from a fluorescent dye, a hybridization-stabilizing moiety, a chemiluminescent dye, and an affinity ligand, wherein: R¹ and R², when taken separately, are selected from C₁-C₁₂ alkyl, C₅-C₁₄ aryl and saturated rings containing up to 10 carbon atoms, or, when taken together with the phosphoramidite nitrogen atom form a saturated ring containing from 5 to 12 ring atoms; R³ is a phosphite ester protecting group; and R⁵ is selected from H, C₁-C₆ alkyl and C₅-C₁₄ aryl; and

Q is selected from the diazo structures:



and



wherein:

Ar is C₅-C₁₄ aryl;

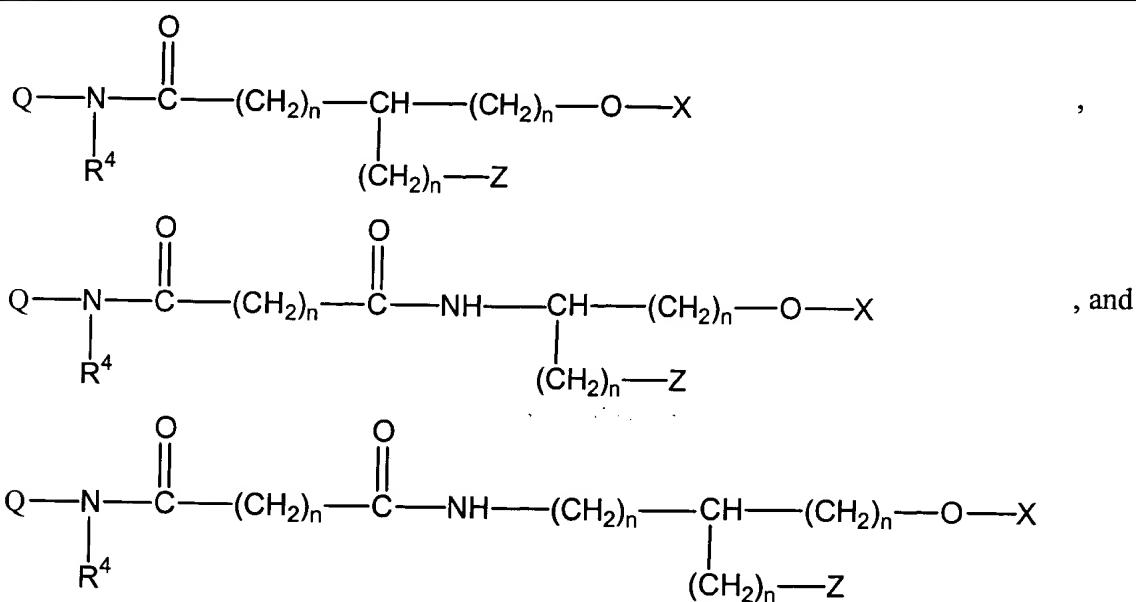
one of the aryl carbons of the diazo structures is the site of attachment to L₁;

at least one aryl carbon of each diazo structure is substituted with an electron-withdrawing group; and

at least one aryl carbon of each diazo structure is substituted with an electron-donating group.

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CDOT **Claim 77 (new):** The fluorescence quencher compound of claim 76 which is selected

from the structures:



wherein n and R⁴ are as previously defined.